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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/589,464	08/14/2006	Kazuhiro Sugie	043888-0501	7177
53080 7590 07/30/2008 MCDERMOTT WILL & EMERY LLP 600 13TH STREET, NW WASHINGTON, DC 20005-3096				
EXAMINER				
PARSONS, THOMAS H				
ART UNIT		PAPER NUMBER		
1795				
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07/30/2008		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/589,464

**Applicant(s)**

SUGIE ET AL.

**Examiner**

THOMAS H. PARSONS

**Art Unit**

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-854)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date 08/14/2006; 10/04/2007

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP2003-346888 in view of JP2003-250913.

**Claim 1:** JP2003-346888 in Figure 1 discloses a lead storage battery including:

an electrode plate pack comprising a plurality of negative electrode plates (2) which each comprise a negative electrode grid (6) having a tab and a negative electrode active material layer retained by the negative electrode grid, a plurality of positive electrode plates (1) which each comprise a positive electrode grid having a tab and a positive electrode active material layer retained by the positive electrode grid, and a plurality of separators (3) separating the positive electrode plate and the negative electrode plate;

a positive electrode connecting member (10, 8) comprising a positive electrode strap (8) to which the tab of each positive electrode plate of the electrode plate pack is connected, and a positive electrode pole or a positive electrode connecting body (10) provided at the positive electrode strap; and

a negative electrode connecting member (7, 9) comprising a negative electrode strap (7) to which the tab of each negative electrode plate of the electrode plate pack is connected, and a

negative electrode pole or a negative electrode connecting body (9) provided at the negative electrode strap, (see paragraphs [0010]-[0020])

wherein the positive electrode grid, the negative electrode grid, the positive electrode connecting member, and the negative electrode connecting member comprise a Pb-alloy including at least one of Ca and Sn, (see paragraphs [0012]-[0013]) and negative electrode active material layer includes 0.0001 to 0.003 wt % of Sb (see paragraphs [0005]-[0007]).

JP2003-346888 does not disclose that the negative electrode active material layer includes 0.01 to 2 wt % of condensate of bisphenol and aminobenzene sulfonic acid derivative (see abstract).

JP11-250913 discloses that the negative electrode active material layer includes 0.01 to 2 wt % (0.5-.75 wt%) of condensate of bisphenol and aminobenzene sulfonic acid derivative (abstract).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the negative electrode active material of JP2003-346888 by incorporating the condensate of JP11-250913 because JP11-250913 teaches a condensate that would have provided a lead acid battery with long cycle life and less drop in low temperature capacity thereby improving the overall life and performance of the battery.

**Claim 2:** JP2003-346888 further discloses that the Sb content in said negative electrode active material layer is 0.0001 to 0.001 wt % (paragraphs [0006]-[0007]).

3. Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP2003-346888 in view of JP11-250913 as applied to claim 1 above, and further in view of JP2003-338312.

JP2003-346888 and JP11-250913 are as applied, argued, and discloses above, and incorporated herein.

**Claim 3:** The JP2003-346888 combination does not disclose that the separator comprises a fiber having resistance to acids (abstract).

JP2003-338112 discloses a separator comprising a fiber having a resistance to acids.

**Claim 4:** The JP2003-346888 combination does not disclose that the fiber is a glass fiber or a synthetic fiber.

JP2003-338112 discloses a glass fiber (abstract)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the separator of the JP2003-346888 combination by incorporating the separator of JP2003-338112 because JP2003-338112 teaches a separator that would have provided a lead acid battery having a high output required for restart and life characteristics in a deep charge and discharge cycle compatible with one another thereby improving the overall life and performance of the battery.

4. Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP2003-346888 in view of JP62-064057, and further in view of JP2003-250913.

**Claim 1:** JP2003-346888 in Figure 1 discloses a lead storage battery including:

an electrode plate pack comprising a plurality of negative electrode plates (2) which each comprise a negative electrode grid (6) having a tab and a negative electrode active material layer retained by the negative electrode grid, a plurality of positive electrode plates (1) which each comprise a positive electrode grid having a tab and a positive electrode active material layer retained by the positive electrode grid, and a plurality of separators (3) separating the positive electrode plate and the negative electrode plate;

a positive electrode connecting member (10, 8) comprising a positive electrode strap (8) to which the tab of each positive electrode plate of the electrode plate pack is connected, and a positive electrode pole or a positive electrode connecting body (10) provided at the positive electrode strap; and

a negative electrode connecting member (7, 9) comprising a negative electrode strap (7) to which the tab of each negative electrode plate of the electrode plate pack is connected, and a negative electrode pole or a negative electrode connecting body (9) provided at the negative electrode strap, (see paragraphs [0010]-[0020])

wherein the positive electrode grid and the negative electrode grid and the negative electrode grid comprise a Pb-alloy including Sn, (see paragraphs [0012]-[0013]) and negative electrode active material layer includes 0.0001 to 0.003 wt % of Sb (see paragraphs [0005]-[0007]).

JP2003-346888 does not disclose a positive electrode connecting member and a negative electrode connecting member comprising a Pb-alloy including at least one of Ca and Sn.

JP62-064057 discloses a positive electrode connecting member (5) and a negative electrode connecting member (5) comprising a Pb-alloy including at least one of Ca and Sn (abstract).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the connecting members of JP2003-346888 by incorporating the connecting members of JP62-064057 because JP62-064057 teaches connecting members that would have reduced the corrosion of lead parts. By using Pb-Sn-Ag alloy, the small amount of silver existing in the alloy prevents crack generation near the welding surface, and retards the penetration of oxygen into the inside of the alloy because Ag is easily bound to oxygen. Therefore, the progress of corrosion is retarded in addition to the corrosion resistance of silver thereby improving the overall life and performance of the battery.

The JP2003-346888 combination does not disclose that the negative electrode active material layer includes 0.01 to 2 wt % of condensate of bisphenol and aminobenzene sulfonic acid derivative (see abstract).

JP11-250913 discloses that the negative electrode active material layer includes 0.01 to 2 wt % (0.5-.75 wt%) of condensate of bisphenol and aminobenzene sulfonic acid derivative.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the negative electrode active material of the JP2003-346888 combination by incorporating the condensate of JP11-250913 because JP11-250913 teaches a condensate that would have provided a lead acid battery with long cycle life and less drop in low temperature capacity thereby improving the overall life and performance of the battery.

**Claim 2:** JP2003-346888 further discloses that the Sb content in said negative electrode active material layer is 0.0001 to 0.001 wt % (paragraphs [0006]-[0007]).

5. Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP2003-346888 in view of JP62-064057, and further in view of JP11-250913 as applied to claim 1 above, and further in view of JP2003-338312.

JP2003-346888, JP62-064057 and JP11-250913 are as applied, argued, and discloses above, and incorporated herein.

**Claim 3:** The JP2003-346888 combination does not disclose that the separator comprises a fiber having resistance to acids (abstract).

JP2003-338112 discloses a separator comprising a fiber having a resistance to acids.

**Claim 4:** The JP2003-346888 combination does not disclose that the fiber is a glass fiber or a synthetic fiber.

JP2003-338112 discloses a glass fiber (abstract)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the separator of the JP2003-346888 combination by incorporating the separator of JP2003-338112 because JP2003-338112 teaches a separator that would have provided a lead acid battery having a high output required for restart and life characteristics in a deep charge and discharge cycle compatible with one another thereby improving the overall life and performance of the battery.

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6. Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP2003-346888 in view of Omac et al. (US6,455,191), and further in view of JP2003-250913.

**Claim 1:** JP2003-346888 in Figure 1 discloses a lead storage battery including:

an electrode plate pack comprising a plurality of negative electrode plates (2) which each comprise a negative electrode grid (6) having a tab and a negative electrode active material layer retained by the negative electrode grid, a plurality of positive electrode plates (1) which each comprise a positive electrode grid having a tab and a positive electrode active material layer retained by the positive electrode grid, and a plurality of separators (3) separating the positive electrode plate and the negative electrode plate;

a positive electrode connecting member (10, 8) comprising a positive electrode strap (8) to which the tab of each positive electrode plate of the electrode plate pack is connected, and a positive electrode pole or a positive electrode connecting body (10) provided at the positive electrode strap; and

a negative electrode connecting member (7, 9) comprising a negative electrode strap (7) to which the tab of each negative electrode plate of the electrode plate pack is connected, and a negative electrode pole or a negative electrode connecting body (9) provided at the negative electrode strap, (see paragraphs [0010]-[0020])

wherein the positive electrode grid and the negative electrode grid and the negative electrode grid comprise a Pb-alloy including Sn, (see paragraphs [0012]-[0013]) and negative electrode active material layer includes 0.0001 to 0.003 wt % of Sb (see paragraphs [0005]-[0007]).

JP2003-346888 does not disclose a positive electrode connecting member and a negative electrode connecting member comprising a Pb-alloy including at least one of Ca and Sn.

Omac et al. discloses disclose a positive electrode connecting member (strap) and a negative electrode connecting member (strap) comprising a Pb-alloy including at least one of Ca and Sn (abstract, col. 2: 30-col. 3: 21, and col. 4: 5-col. 7: 13)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the connecting members of JP2003-346888 by incorporating the connecting members of Omac et al because Omac et al. teach connecting members that would improved the resistance of straps, poles and cell connectors to general corrosion and grain boundary corrosion, inhibit the occurrence of the stress corrosion cracking and enhance the alloy strength, thus providing a lead acid battery having excellent reliability.

The JP2003-346888 combination does not disclose that the negative electrode active material layer includes 0.01 to 2 wt % of condensate of bisphenol and aminobenzene sulfonic acid derivative (see abstract).

JP11-250913 discloses that the negative electrode active material layer includes 0.01 to 2 wt % (0.5-.75 wt%) of condensate of bisphenol and aminobenzene sulfonic acid derivative.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the negative electrode active material of the JP2003-346888 combination by incorporating the condensate of JP11-250913 because JP11-250913 teaches a condensate that would have provided a lead acid battery with long cycle life and less drop in low temperature capacity thereby improving the overall life and performance of the battery.

**Claim 2:** JP2003-346888 further discloses that the Sb content in said negative electrode active material layer is 0.0001 to 0.001 wt % (paragraphs [0006]-[0007]).

7. Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP2003-346888 in view of Omac et al., and further in view of JP11-250913 as applied to claim 1 above, and further in view of JP2003-338312.

JP2003-346888, Omac et al. and JP11-250913 are as applied, argued, and discloses above, and incorporated herein.

**Claim 3:** The JP2003-346888 combination does not disclose that the separator comprises a fiber having resistance to acids (abstract).

JP2003-338112 discloses a separator comprising a fiber having a resistance to acids.

**Claim 4:** The JP2003-346888 combination does not disclose that the fiber is a glass fiber or a synthetic fiber.

JP2003-338112 discloses a glass fiber (abstract)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the separator of the JP2003-346888 combination by incorporating the separator of JP2003-338112 because JP2003-338112 teaches a separator that would have provided a lead acid battery having a high output required for restart and life characteristics in a deep charge and discharge cycle compatible with one another thereby improving the overall life and performance of the battery.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to THOMAS H. PARSONS whose telephone number is (571)272-1290. The examiner can normally be reached on M-F (7:00-3:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/PATRICK RYAN/  
Supervisory Patent Examiner, Art Unit 1795

Thomas H Parsons  
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